On The Nature Of Time, Light, and Space

NiMR3V *
(Dated: April 16, 2025)

Time, Light, and Space (TLS) is a field theory describing the fundamental nature of gravity. Gravity, as the fundamental force, serves as the foundation upon which all phenomena are emergent as a consequence of action.

I. INTRODUCTION

By combining space, and time with gravity all phenomena emerge naturally due to the speed of light serving as a boundary between the rate at which information is transferred, and the rate at which its gravitational influence propagates.

II. DEFINITIONS

A. A Universe

A universe is an observable universe whose origin is its reference point.

B. The Cosmos

The cosmos refers to the universe containing all observable universes. This differentiation is important.

C. An Object

An object is any object that has a measurable quality including, but not limited to, the cosmos, any particle, a universe, an energy, and information.

Objects are simultaneously dependent on, and independent of other objects, including themselves, due to the nature of gravity.

Objects are discrete.

D. An Action

An action is any action, including an inaction, such that it has a measurable constructive and destructive effect on an action, or object.

An inaction is defined as an action that negates the effect of an action.

Actions are continuous.

* NiMR3V@proton.me

III. EQUATIONS

The following equations provide the basis for TLS; understanding them is necessary for understanding the cosmos.

A. The Characteristic Velocity Constant

The characteristic velocity constant, K, is:

$$\mathrm{K} = \pi \mathrm{c}.$$

B. The Cosmic Expansion Structural Constant

The cosmic expansion structural constant, Λ, is:

$$\Lambda = \frac{\mathrm{s}^3}{2\mathrm{m}^2}.$$

C. The Observational Boundaries of a Universe

The observational boundaries of a universe are determined by its symmetries.

1. The Acceleration Boundaries

The acceleration scale of a universe is:

$$\mathrm{a_U} = \frac{1}{\Xi_\mathrm{U}}.$$

The inverse acceleration scale of a universe is:

$$\Xi_\mathrm{U} = \mathrm{K}\Lambda.$$

2. The Temporal Boundaries

The age of a universe is:

$$\mathrm{T_U} = \mathrm{K}^2\Lambda.$$

The reciprocal of the age of a universe provides the Hubble parameter of a universe:

$$\mathrm{H}_0 = \frac{1}{\mathrm{T_U}}.$$

3. The Spatial Boundary

The radius of a universe is:

$$\mathrm{R_U} = \mathrm{K}^3\Lambda.$$

The inverse radius is the wavenumber associated with the size of the universe:

$$\frac{1}{\mathrm{R_U}}$$

4. The Speed Of Light Boundary

The speed of light is the boundary for the rate at which information is transferred and the rate at which its gravitational influence propagates and is proportional to the radius and age of a universe.

The speed of light may be calculated using the cosmic distance ladder:

$$\mathrm{c} = \frac{2\mathrm{R_U}}{2\pi\mathrm{T_U}}.$$

D. The Quantum Boundaries

1. The Minimum Quantum of Energy

A quantum of energy is associated with the age of a universe:

$$\frac{\hbar}{\mathrm{T_U}}.$$

2. The Quantum Moment of Inertia Scale

The quantum moment of inertia is associated with the age of a universe:

$$\hbar\mathrm{T_U}.$$

3. The Fundamental Momentum Scale

A quantum of momentum is associated with the size of a universe:

$$\frac{\hbar}{\mathrm{R_U}}.$$

4. The Minimum Quantum of Mass: The Graviton

A quantum of mass, or the mass of the graviton, is associated with the size of a universe's spacetime:

$$\mathrm{W} = \frac{\hbar}{\mathrm{K}^4\Lambda}.$$

The graviton is the result of an evaporative process, and is evaporated per cycle.

5. The Graviton Kinetic Coefficient Scale

The quantum kinetic scale associated with the graviton mass is:

$$\frac{\hbar^2}{W}.$$

E. The Relativistic Boundaries

1. The Cosmological Acceleration Scale

The cosmological acceleration scale approximates the observed galactic acceleration thresholds, suggesting a potential link between cosmic expansion and local dynamics:

$$\frac{\mathrm{c}}{\mathrm{T_U}}.$$

2. The Cosmic Frequency Scale

The cosmic frequency scale represents the lower limit of frequency imposed by the finite causal size of a universe:

$$\frac{\mathrm{c}}{\mathrm{R_U}}.$$

IV. EXPLANATIONS

Intentionally left blank.

V. CONCLUSION

Intentionally left blank.